



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

ART. X.—CRITICAL NOTICES.

1. — *The Culture demanded by Modern Life ; a Series of Addresses and Arguments on the Claims of Scientific Education.* By PROFESSORS TYNDALL, HENFREY, HUXLEY, PAGET, WHEWELL, FARADAY, LIEBIG, DRAPER, DE MORGAN, DR. BARNARD, HODGSON, CARPENTER, HOOKER, ACLAND, FORBES, HERBERT SPENCER, SIR JOHN HERSCHEL, SIR CHARLES LYELL, DR. SEGUIN, MR. MILL, etc. *With an Introduction on Mental Discipline in Education* by E. L. YOUNG. New York: D. Appleton & Co. 1867. pp. x., 473.

IN this volume Dr. Youmans has brought together, for his own purposes, a mass of scattered and not easily accessible documents, whose value is by no means for those only who share his views of education. What these views are appears from his Introduction. In this he has, he says, "attempted to show that a course of study, mainly scientific, not only meets the full requirements of mental training, but also affords the kind of culture or mental discipline which is especially needed in this country at the present time." The antithesis here of mental training and mental discipline is a little puzzling; but Dr. Youmans seems to understand by mental training the systematic acquisition of useful information, and by mental discipline — if we do not misinterpret his physiological theory — the process by which certain tracks are to be worn into the nervous substance of the brain in order to facilitate the flow and the orderly combination of ideas. Education, in his conception of it, is divided into two parts. Its basis is "the great law of acquisition." This law is, that whatever is learned must have an economic as well as a disciplinary use. "The moment that the conception of *value* attaches to power, the idea of its economy inevitably arises, and this is fatal to its vicarious application." By "vicarious" application he means use for the sole end of discipline, for the sake of mental perfection itself, and not for any ulterior advantage. "Hence gymnastics are never thought of as a preparation for industrial occupation," because in this case it is obvious "that the laborer has but a limited amount of power, which it is necessary to utilize." So in the world of business; and the same thing is equally true, though not perhaps so obvious, "in the world of mind and education." But then, if so, of course it is for the same reason, namely, that what is sought is not at last mental improvement, but some ulterior product for which this is to be instrumental. The standard of *value*

here referred to is sufficiently clear, and it is equally clear, we think, that it is not the standard of those who urge the claims of culture for its own sake.

The mental discipline which Dr. Youmans recommends seems to amount, if we understand him correctly, simply to the formation of habits of thought. The means whereby it is brought about is a change gradually wrought in the structure of the brain by the reiteration of similar impressions, the effect of which is to arrange and to facilitate the reception and transmission of successive impressions. In this way thinking becomes less and less of a conscious effort, and more and more an automatic operation of the nervous system. The basis of mental discipline accordingly is to be sought in the properties of the nervous substance of the brain. In dealing with the problem of Education, it is the organism with which we have finally to deal. "The mental associations are formed by combinations of currents in the brain, and are made permanent by the growth and modification of cells at the points of union." When a child is said to "learn" what a dollar is, "the real fact of the case is, that the currents formed by visible impressions, vocal movements and sounds, are often repeated together, and are thus combined in the brain, and fixed by specific growths at their points of union, and in this way the mental associations are cemented by cerebral nutrition." This view, no doubt, as Dr. Youmans says, must lead to important practical conclusions. But it is not at once evident what these conclusions are, or that when arrived at they would be of much service in Education, — unless, indeed, it would be a service to show that Education is a word without meaning. No one, we believe, has seen these currents, or pointed out the tracks they wear, or the modified cells which fix the mental associations. When the facts are shown, it will be time enough to draw the proper inferences. Meantime speculation about them is as untrammelled as would be an inquiry into the physical effects of a chimera buzzing *in vacuo*. But supposing them traced out and the whole mechanism explained through which impressions from without affect us, still the question of the *meaning* and the comparative value of the impressions would remain untouched. Here, however, it is that the province of Education begins. The office of Education is to help us to use our facts, and of course first of all to distinguish between them, and rightly to apprehend their relations and their enormous diversity in value. The first step in culture is to escape from bondage to the immediate, local, and momentary. The first lesson the "facts" teach us, and always one of the most important, is that they are not fixed or final, not truth, but that, when rightly apprehended, they lead us beyond themselves. What

else is experience? And what is it good for, except as a constant burning of the old rubbish that forms so large a part of the concrete impression? Of course all facts are good; there is no need that a man should be a cockney or a greenhorn for the sake of Culture. So is all food good, yet not unless it is digested, — not *as* food. Food of itself is not life, nor can it create an atom of blood or of bone. It is not as food that it nourishes, and to remain what it is would be to lose all value and become mere obstruction. In the same way the mind that accepts and passively retains its data remains excluded from their benefit; the benefit is for others; the more you insist on their solid matter-of-fact character, the more you show that they have not been disposed of and come to their use. The highest transmutation, or fact seen in its widest relations, is of course moral truth. But short of this and of the purely disinterested pursuit of truth for its own sake, — for instance, in professional training, — the indispensable object surely is yet beyond the facts, to attain the power of seeing always their limitations and their merely relative character. The lawyer or the physician who is the victim of symptoms or of the client's statement, the man of business who can see only the immediate prospect of gain and is unable to control it from any wider range of perception, are unprepared for their work. The whole difference between wisdom and folly in the dealings of life, nay, between sanity and insanity, depends on the power of the mind to keep its facts as it were in flux, and to prevent them from solidifying into superstitions, consecrated prejudices, — on something, therefore, which is the opposite of automatism. It is remarkable, by the way, that Dr. Youmans, like Bacon before him, should have seen the necessary consequence of assuming truth to lie ready made in the outward world as metal in a mine; namely, that the pursuit of it, the more intelligently it is conducted, the more it must become a merely mechanical operation, without being alarmed at the result.

But it would be doing injustice to the book and to the intention of the compiler if we gave the impression that it is a collection of mere *ex parte* testimony. On the contrary, most of it is just as useful to those who differ most widely from him in opinion. It is unnecessary for us to commend to attention anything of Tyndall's, Faraday's, De Morgan's, or Huxley's, upon this or any other subject, and as the title-page is sufficiently explicit, our task might here come to an end. We shall take the liberty, however, if our readers can bear it, of saying a word or two upon this somewhat battered topic, the comparative advantages of a mostly scientific or a mostly literary training. Education, we assume, can never create anything; its only use is to condense and

purify experience, — to do more shortly, certainly, and thoroughly what mere living will effect after a fashion. The preliminary inquiry in any given case then will be, What sort of experience would be most serviceable to this person? What does he need, and what is he capable of receiving? The first part of the question would be enough, were it not that the want may sometimes extend to incapacity to receive. There must be a germ already, else nothing can be developed. Moreover, the degree of need and the amount to be supplied are not to be fixed by any conventional standard or by the abstract value of the acquirement, but must depend very much upon individual gifts. We must be content to accept the fact of immense diversities of original endowment, both as regards amount and direction. It is of no use to prove that paraffine oil contains in a high degree the requisite elements for nutrition: if it cannot be digested, it is not nutritious. It helps nothing to insist upon the value of this or that study for some other purpose or for another person: its usefulness for education must be determined by actual experience in the particular case.

If the correctness of these premises be admitted, it is evident that a great deal of the discussion that has been lavished upon this subject is beside the point, and that no general proposition, however well founded in itself, ought to countervail the indication of native talent, or even bias, wherever that is distinct, in assigning the tasks upon which the faculties are to be exercised. There is no good in dogmatizing or exclusion, and no magic in any particular course. All ways are good that lead to the end; and if the stream runs, it may be trusted to find the shortest road for itself. In the absence of any such indication, however, we have to look to general probabilities, and then the question of the inherent superiority of one or another branch of study has greater pertinency. Where we can discover no predisposition in the pupil, it is natural to ask which line of study is best worth the while of itself. That surely in which the most truth is to be learned. But which is this? "The most incessant occupation of the human intellect," says Mr. Mill, "is the ascertainment of truth. We are always needing to know what is actually true about something or other." That is, to judge correctly what inferences are to be drawn from our facts, and what are their true relations to other facts. The most valuable truths are those which are the most widely related, and which make demand upon the judgment rather than upon simple apprehension. This would lead to the moral truths, those which respect the conduct of human life; these are the most profitable in themselves, and it would seem must afford the most profitable exercise for the faculties we wish to cultivate. In science, on the other hand, the matter-of-fact holds a more important place. Of course there

is plenty of room for careful inference and correct judgment here too, and the highest results are attainable only by a process allied to that by which moral truths are ascertained. But it is the restraint, the suspense of judgment, the chariness of inference, rather than the appeal to the imagination and the reasoning powers, that characterize the scientific spirit. This is especially true of the learner; but even the adept is mainly exercised, as far as the judgment is concerned, in keeping his mind in a negative, receptive attitude, — in sticking to facts, and abstaining from all conclusions not forced upon him by the facts, rather than in seeking their meaning. He surrenders himself, as Professor Tyndall says, to Nature, because Nature is to him truth. But the seeker for moral truth does not surrender himself unconditionally to Nature, but demands the meaning and the justification of what exists. Not that the accurate apprehension of facts is of less importance to him, or that any essential superiority in this direction is to be claimed for natural science. The reason it seems so is only that he discriminates his facts more closely, and shows them in due relation and proportion, not merely to other facts of the same kind, but to the rest of the universe. Compare a page of Plutarch's *Lives* with a page, say, of a treatise on beetles. It would be absurd to pretend that the bodily existence of these heroes and sages is of less importance, or less necessary to their story, than the forms, colors, or minute configuration of the beetles. But the beetles have no story, and so this prominence remains attached to details which disappear from sight in Solon and Themistocles. Indeed, it is to this very abstractness, to the side therefore on which it is weakest, rather than to its intrinsic merits as science, that the advantages claimed for elementary scientific instruction seem to us to belong. Accurate perception is an indispensable preliminary everywhere, and it may perhaps be most conveniently cultivated at first through studies in which it holds the first place. The meagreness and consequent simplicity of the subject-matter may fit it to discipline, without overtasking the lively but easily fatigued curiosity that marks the nascent intelligence. But elementary natural history used, as of late often recommended, for the chief occupation of the earliest school-years, seems rather diluted food for an active mind. For babes, indeed, the diluted food may be better than strong meat; but then its limitations ought to be distinctly recognized, and the incidental services it may render, partly from the very restraint put upon the higher faculties, ought not to be confounded with the value which science has for the trained investigator. Even in his case, indeed, the habit of submission to the authority of "facts" continues, and must continue, and this habit, important as it is, is not of un-mixed benefit. In the service of an alert and far-reaching intellect

that is in no danger of resting content with its facts as if they were finalities, the restraint is excellent, and not at all obstructive, but of itself the reverence for the physical fact is apt to become a levity about the inferences to be drawn from it. The effect is seen in much that has been written of late about the connection of mental phenomena with physiology. The data are such as these, — *some* connection of the brain with thought, — then, further, certain fibres and cells in the brain, — measurable intervals of time occupied by the transmission of impressions from the periphery to the nervous centres, &c. Then, *because* we know nothing more, it is swiftly concluded that it is the brain that thinks, or, as Dr. C. Vogt puts it, that the soul is only a collective name for certain functions of the nervous system. Dr. Bucknill declares that the growth and renovation of nerve-cells in the brain “are the most ultimate conditions of mind with which we are acquainted”; but instead of inferring from this that we know very little indeed about the mind, he concludes that thought, recollection, and reason are products of “the activity of the vesicular neurine of the brain.” But as to the question of the comparative merits of scientific and of literary instruction, any definitive opinion must be premature until the *methods* of all instruction shall be very much better than they are. A great deal of what is urged, for example, against the classics, hits only the stupid way in which the classics, like everything else, have been taught, and amounts only to saying that they have been oftener taught than other things. It is only by accident that the pedant has heretofore usually been a classical pedant, and he will be in no respect improved if he is only transformed into a scientific pedant.

2. — *The People are Sovereign: being a Comparison of the Government of the United States with those of the Republics which have existed before, with the Causes of their Decadence and Fall.* By JAMES MONROE, Ex-President of the United States. And dedicated by the Author to his Countrymen. Edited by SAMUEL L. GOUVERNEUR, his Grandson and Administrator. Philadelphia: J. B. Lippincott & Co. 12mo. 1867. pp. 274.

MOST of the Presidents of the United States of the first half-century of the constitutional age had considerable pretensions to be called men of letters. Washington's Writings bear to his fame the same relation that is borne to Wellington's fame by the famous Despatches, being history as well as material for history. John Adams was a voluminous author, and his works command respect, as well from the